

**NORTH ATTLEBORO
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report
January 1, 2015

**Sherman
Actuarial
Services**

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Report Summary:**Highlights****January 1, 2013****January 1, 2015****Contributions**

Funding Schedule FY 2016	\$3,594,628	\$3,594,629
Funding Schedule FY 2017	3,725,949	\$3,667,448

Funded Ratios

GAS No. 25	71.7%	79.1%
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Participants

Actives	468	479
Retirees and Beneficiaries	209	222
Inactives	197	189
Disabled	<u>25</u>	<u>25</u>
Total	899	915

Payroll

Payroll of Active Members	\$20,031,655	\$22,706,208
Average Payroll	42,803	47,403

Normal Cost

Employer	1,003,680	1,302,343
Employee	1,722,508	1,968,034
Administrative Expenses	<u>199,000</u>	<u>235,000</u>
Total	2,925,188	3,505,377

Actuarial Accrued Liabilities

Actives	52,565,623	60,575,942
Retirees, Beneficiaries, Disabilities and Inactives	<u>49,109,084</u>	<u>53,756,037</u>
Total	101,674,707	114,331,979

Actuarial Value of Assets

<u>72,945,050</u>	<u>90,465,068</u>
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Unfunded Actuarial Accrued Liabilities

\$28,729,657	\$23,866,911
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Introduction

This report presents the findings of an actuarial valuation as of January 1, 2015, of North Attleboro Contributory Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L.", as of January 1, 2015.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Town of North Attleboro Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2015.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the last two years, the total unfunded actuarial accrued liability decreased by 16.9% to \$23,866,911. The increase is the result of net favorable actuarial experience during the preceding years, plan and actuarial assumption changes. The sources of actuarial (gains) and losses are as follows:

Assets	(5,082,866)
Salary Increases	2,097,355
New Participants	189,380
Active - Retirements	1,226,166
Active - Terminations	242,478
Active - Mortality	(180,786)
Active - Disabilities	(129,658)
Inactive - Mortality and data adjustments	301,335
Other, includes data adjustments, buybacks, interest on ASF	<u>736,073</u>
Total Actuarial (Gain) / Loss	(5,082,866)

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	<u>January 1, 2013</u>	<u>January 1, 2015</u>
Superannuation	\$1,899,223	\$2,143,936
Termination	220,227	338,359
Death	120,582	209,384
Disability	486,156	578,698
Administrative Expenses	<u>199,000</u>	<u>235,000</u>
Total Normal Cost	2,925,188	3,505,377
% of Pay	14.6%	15.4%
Employee Contributions	1,722,508	1,968,034
% of Pay	8.6%	8.7%
Employer Normal Cost	\$1,202,680	\$1,537,343
% of Pay	6.0%	6.8%

Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits based on the past service of the actives and inactive. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	<u>January 1, 2013</u>	<u>January 1, 2015</u>
Actives		
Superannuations	\$46,675,609	\$56,071,948
Termination	865,350	(984,226)
Death	1,472,465	1,432,135
Disability	3,552,199	4,056,085
 Retirees and Inactives		
Retirees and Beneficiaries	38,353,183	42,721,755
Terminated (Refund)	1,550,289	1,440,871
Disabled	<u>8,987,094</u>	<u>9,593,411</u>
 Total	\$101,674,707	\$114,331,979

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive participants as well as all benefits earned and expected to be earned in the coming years by the active participants. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	<u>January 1, 2013</u>	<u>January 1, 2015</u>
Actives		
Superannuation	\$61,910,947	\$72,918,267
Termination	1,719,048	1,773,447
Death	2,396,322	2,985,518
Disability	8,163,751	9,563,702
 Retirees and Inactives		
Retirees and Beneficiaries	38,353,183	42,721,755
Terminated (Refund)	1,550,289	1,440,871
Disabled	<u>8,987,094</u>	<u>9,593,411</u>
 Total	\$123,299,152	\$140,996,971

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	<u>January 1, 2013</u>	<u>January 1, 2015</u>
Cash equivalents	\$2,937,667	\$3,030,189
Short term investments	0	0
Fixed income securities	21,996,968	19,109,833
Equities	37,781,644	50,950,366
International	7,266,450	8,509,561
Real Estate	4,760,418	13,120,719
Venture Capital	0	0
Other	0	0
Accounts receivable	43,208	95,700
Accounts payable	(152,138)	(83,818)
Accrued income	<u>0</u>	<u>0</u>
Total Market Value	\$74,634,217	\$94,732,550
Total Actuarial Value	\$72,945,050	\$90,465,068

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 20%. The calculation of the actuarial value of assets as of January 1, 2015 is presented in Table V.

Table V

	<u>January 1, 2015</u>
(1) Market value at January 1, 2014	\$88,540,978
(2) 2014 Contributions	\$6,161,579
(3) 2014 Payments	(\$6,247,708)
(4) Net interest adjustment at 8% on (1), (2), and (3) to December 31, 2014	\$7,079,833
(5) Expected market value on January 1, 2015	\$95,534,682
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2015	\$94,732,550
(7) 2014 (Gain) / Loss	\$802,132
(8) 80% of 2014 (Gain) / Loss	\$641,706
(9) 2013 (Gain) / Loss	(\$8,230,279)
(10) 60% of 2013 (Gain) / Loss	(\$4,938,167)
(11) 2012 (Gain) / Loss	(\$1,739,597)
(12) 40% of 2012 (Gain) / Loss	(\$695,839)
(13) 2011 (Gain) / Loss	\$3,624,092
(14) 20% of 2011 (Gain) / Loss	\$724,818
Actuarial value on January 1, 2015, (6) + (8) + (10) + (12) + (14)	
(15) but not less than 80% nor greater than 120% of (6)	\$90,465,068
(16) Ratio of actuarial value to market value	95.50%
(17) Actuarial Value Return for 2013	12.44%
(18) Actuarial Value Return for 2014	10.81%
(19) Market Value Return for 2013	19.05%
(20) Market Value Return for 2014	7.09%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	<u>January 1, 2013</u>	<u>January 1, 2015</u>
Actuarial Accrued Liability	\$101,674,707	\$114,331,979
Actuarial Assets	<u>72,945,050</u>	<u>90,465,068</u>
Unfunded Actuarial Accrued Liability	\$28,729,657	\$23,866,911
Funded Status	71.7%	79.1%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Sections 22D and 22F of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2040, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the unfunded actuarial accrued liability by June 30, 2032
\$ 23,847,425 over 17 years with 4.0% increasing payments
- Level amortization of the Early Retirement Incentive by June 30, 2018
\$ 19,486 over 3 years
- Interest adjustment for payments deposited at the beginning of the fiscal year.

The pension appropriation is shown in Table VII.

Table VII

	<u>January 1, 2013</u>	<u>January 1, 2015</u>
Normal cost	\$1,202,680	\$1,537,343
Amortization payment of the accrued liability	2,005,938	1,865,170
Amortization payment of 1992 ERI liability	<u>7,001</u>	<u>7,001</u>
Total cost	\$3,215,619	\$3,409,514
% of Pay	16.1%	15.0%
Fiscal 2016 cost	\$3,594,628	\$3,594,629
Fiscal 2017 cost	\$3,725,949	\$3,667,448

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2038 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 19 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents 16.5% of payroll, decreasing to 14.2% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 4.6% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

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Appropriation Forecast

Fiscal Year	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Unfunded Liability	Funded Ratio %**
2016	\$1,968,034	\$1,597,654	\$1,996,975	\$3,594,629	15.8	\$23,815,553	79.2
2017	\$2,076,361	\$1,649,007	\$2,018,441	\$3,667,448	15.5	\$23,698,853	80.1
2018	\$2,190,452	\$1,701,747	\$2,098,887	\$3,800,634	15.3	\$23,497,137	81.2
2019	\$2,310,607	\$1,755,894	\$2,175,276	\$3,931,170	15.2	\$23,195,680	82.4
2020	\$2,437,140	\$1,811,469	\$2,262,287	\$4,073,756	15.0	\$22,790,721	83.5
2021	\$2,570,383	\$1,868,490	\$2,352,779	\$4,221,269	14.9	\$22,262,941	84.6
2022	\$2,710,681	\$1,765,812	\$2,446,890	\$4,212,702	14.2	\$21,598,897	85.8
2023	\$2,858,402	\$1,986,938	\$2,544,765	\$4,531,703	14.7	\$20,783,926	86.9
2024	\$3,013,928	\$2,048,396	\$2,646,556	\$4,694,952	14.5	\$19,802,043	88.1
2025	\$3,177,664	\$2,111,363	\$2,752,418	\$4,863,781	14.4	\$18,635,824	89.3
2026	\$3,350,032	\$2,175,848	\$2,862,515	\$5,038,363	14.3	\$17,266,293	90.5
2027	\$3,531,479	\$2,241,862	\$2,977,016	\$5,218,878	14.2	\$15,672,784	91.7
2028	\$3,722,472	\$2,309,411	\$3,096,096	\$5,405,507	14.0	\$13,832,801	93.0
2029	\$3,923,504	\$2,378,499	\$3,219,940	\$5,598,439	13.9	\$11,721,868	94.3
2030	\$4,135,090	\$2,449,129	\$3,348,738	\$5,797,867	13.8	\$9,313,357	95.6
2031	\$4,357,774	\$2,521,299	\$3,482,687	\$6,003,986	13.7	\$6,578,315	97.1
2032	\$4,592,125	\$2,595,005	\$3,621,995	\$6,217,000	13.5	\$3,485,266	98.5
2033	\$4,838,744	\$2,670,238	\$0	\$2,670,238	5.6	\$0	100.0
2034	\$5,098,260	\$2,746,988	\$0	\$2,746,988	5.5	\$0	100.0
2035	\$5,371,334	\$2,825,238	\$0	\$2,825,238	5.4	\$0	100.0
2036	\$5,658,660	\$2,904,968	\$0	\$2,904,968	5.3	\$0	100.0
2037	\$5,960,969	\$2,986,153	\$0	\$2,986,153	5.2	\$0	100.0
2038	\$6,279,026	\$3,068,761	\$0	\$3,068,761	5.1	\$0	100.0
2039	\$6,561,582	\$3,206,856	\$0	\$3,206,856	5.1	\$0	100.0
2040	\$6,856,854	\$3,351,164	\$0	\$3,351,164	5.1	\$0	100.0
2041	\$7,165,412	\$3,501,966	\$0	\$3,501,966	5.1	\$0	100.0
2042	\$7,487,856	\$3,659,555	\$0	\$3,659,555	5.1	\$0	100.0
2043	\$7,824,809	\$3,824,235	\$0	\$3,824,235	5.1	\$0	100.0
2044	\$8,176,926	\$3,996,325	\$0	\$3,996,325	5.1	\$0	100.0
2045	\$8,544,887	\$4,176,160	\$0	\$4,176,160	5.1	\$0	100.0
2046	\$8,929,407	\$4,364,087	\$0	\$4,364,087	5.1	\$0	100.0
2047	\$9,331,230	\$4,560,471	\$0	\$4,560,471	5.1	\$0	100.0

** Beginning of Fiscal Year

GASB Statements No. 25 and No. 27

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to \$0. The required disclosure information is shown in Table VIII.

Table VIII

	<u>January 1, 2013</u>	<u>January 1, 2015</u>
(1) Actuarial Accrued Liability	\$101,674,707	\$114,331,979
(2) Actuarial Value of Assets	<u>72,945,050</u>	<u>90,465,068</u>
(3) Unfunded Actuarial Accrued Liability	28,729,657	23,866,911
(4) Funded Ratio (2)/(1)	71.7%	79.1%
(5) Covered Payroll	\$20,031,655	\$22,706,208
(6) UAAL as a percentage of payroll: (3)/(5)	143.4%	105.1%
(7) Annual Required Contribution (ARC)	\$2,673,646	\$3,594,629
(8) Net Pension Obligation	\$0	\$0

PERAC Annual Statement
APPENDIX PAGE 3
ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by Buck Consultants as of January 1, 2015.

The normal cost for employees on that date was:	\$1,968,034	8.7% of pay
The normal cost for the employer was:	1,302,343	5.7% of pay

The actuarial liability for active members was:	\$60,575,942
The actuarial liability for retired and inactive members was:	53,756,037
Total actuarial accrued liability:	114,331,979
System assets as of that date:	90,465,068
Unfunded actuarial accrued liability:	\$23,866,911

The ratio of system's assets to total actuarial liability was	79.1%
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The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.0%
Rate of Salary Increase:	4.0%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	UAAL as a percent of Covered Payroll
	(a)	(b)	(b-a)	(a/b)	(c)	(b-a)/c
01/01/15	\$90,465,068	\$114,331,979	\$23,866,911	79.1%	\$22,706,208	105.1%
01/01/13	72,945,050	101,674,707	28,729,657	71.7%	20,031,655	143.4%
01/01/10	65,858,791	87,489,524	21,630,733	75.3%	19,802,963	109.2%
01/01/09	56,668,376	82,122,479	25,454,103	69.0%	20,117,831	126.5%
01/01/08	63,704,468	76,813,575	13,109,107	82.9%	19,877,795	65.9%
01/01/06	53,591,084	64,875,957	11,284,873	82.6%	17,860,878	63.2%
01/01/04	47,165,481	57,218,053	10,052,572	82.4%	16,376,143	61.4%
01/01/02	40,232,054	49,619,671	9,387,617	81.1%	15,515,521	60.5%
01/01/00	37,496,091	41,776,394	4,280,303	89.8%	13,315,066	32.1%

Attach Copy of Current Approved Funding Schedule

EXHIBITS

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Age/Service Distribution with Salary as of January 1, 2015

Attained Age	Average Salary									
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
20-24	18	1	0	0	0	0	0	0	0	19
	37,571	0	0	0	0	0	0	0	0	38,103
25-29	13	6	2	0	0	0	0	0	0	21
	34,962	63,429	0	0	0	0	0	0	0	45,573
30-34	5	15	4	0	0	0	0	0	0	24
	62,060	55,655	59,402	0	0	0	0	0	0	57,614
35-39	14	12	9	7	2	0	0	0	0	44
	41,634	50,052	63,630	75,698	0	0	0	0	0	55,454
40-44	16	17	8	18	9	2	0	0	0	70
	27,755	32,676	63,266	65,385	52,335	0	0	0	0	47,273
45-49	9	19	18	6	4	17	2	0	0	75
	23,849	29,551	37,911	71,563	70,486	92,240	0	0	0	51,716
50-54	14	13	19	10	6	16	5	1	0	84
	28,824	24,376	35,449	44,710	69,860	80,813	77,185	83,541	0	47,889
55-59	10	12	18	13	5	13	2	1	0	74
	36,392	36,718	38,800	38,376	42,693	49,647	75,035	50,986	0	41,375
60-64	2	5	7	9	8	6	1	2	0	40
	67,702	38,817	32,144	34,677	42,071	72,185	78,428	72,844	0	46,510
65-69	3	3	2	4	3	4	0	0	0	19
	27,097	22,645	32,155	52,386	46,931	60,931	0	0	0	42,505
70+	0	0	2	3	1	2	0	0	1	9
	0	0	21,265	40,440	23,215	26,972	0	0	21,345	29,151
Total Employees	104	103	89	70	38	60	10	4	1	479
Average Salary	35,258	38,374	41,602	53,216	49,636	70,621	61,442	70,053	21,345	47,403

Retiree Distribution as of January 1, 2015

Attained Age	Number of Employees			Total Payments		
	Female	Male	Total	Female	Male	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	1	0	1	16,341	0	16,341
45-49	1	1	2	65,652	14,234	79,886
50-54	0	4	4	0	45,270	45,270
55-59	9	12	21	50,612	506,784	557,396
60-64	20	17	37	318,922	642,502	961,423
65-69	32	23	55	445,115	733,863	1,178,978
70-74	16	11	27	176,976	281,702	458,679
75-79	17	13	30	265,147	312,288	577,435
80-84	12	7	19	81,721	218,841	300,561
85-89	12	7	19	152,491	151,108	303,599
90-94	4	2	6	20,000	26,517	46,517
95+	1	0	1	8,566	0	8,566
Total	125	97	222	1,601,542	2,933,109	4,534,650
Average (Age/Payment)	72.0	69.5	70.9	12,812	30,238	20,426
Frequency Percent	56.3	43.7	100	35.3	64.7	100

Disabled Retiree Distribution as of January 1, 2015

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	2	0	2	77,198	0	77,198
40-44	0	0	0	0	0	0
45-49	1	2	3	44,788	85,659	130,448
50-54	1	2	3	50,900	49,332	100,232
55-59	3	0	3	117,788	0	117,788
60-64	4	0	4	183,250	0	183,250
65-69	2	0	2	61,040	0	61,040
70-74	6	0	6	138,692	0	138,692
75-79	0	0	0	0	0	0
80-84	2	0	2	55,138	0	55,138
85-89	0	0	0	0	0	0
90-94	0	0	0	0	0	0
95-99	0	0	0	0	0	0
Total	21	4	25	728,795	134,991	863,786
Average (Age/Payment)	63.25	50.53	61.22	34,705	33,748	34,551
Frequency Percent	84.0	16.0	100	84.4	15.6	100

EXHIBIT 4 - CASHFLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2015	\$7,709,703	\$1,968,034	\$3,594,629	\$6,930,147	\$4,783,107
2016	6,698,028	2,076,361	3,667,448	7,405,959	6,451,740
2017	7,131,107	2,190,452	3,800,634	7,907,526	6,767,505
2018	7,687,090	1,765,812	3,931,170	8,429,377	6,439,269
2019	8,283,904	2,437,140	4,073,756	8,967,371	7,194,364
2020	8,823,364	2,570,383	4,221,269	9,524,583	7,492,870
2021	9,363,368	2,710,681	4,212,702	10,266,968	7,826,983
2022	9,917,917	2,858,402	4,531,703	10,713,346	8,185,535
2023	10,492,292	2,680,326	4,694,952	11,348,961	8,231,947
2024	11,123,872	3,177,664	4,863,781	12,012,907	8,930,481
2025	11,722,879	3,350,032	5,038,363	12,707,512	9,373,029
2026	12,280,554	3,531,479	5,218,878	13,439,337	9,909,140
2027	12,872,549	3,722,472	5,405,507	14,212,911	10,468,340
2028	13,423,467	3,923,504	5,598,439	15,033,048	11,131,525
2029	13,918,115	3,676,708	5,797,867	15,908,675	11,465,135
2030	14,403,130	4,357,774	6,003,986	16,848,278	12,806,909
2031	14,905,046	4,592,125	6,217,000	17,858,142	13,762,221
2032	15,424,453	4,838,744	2,670,238	18,796,235	10,880,764
2033	15,961,960	5,098,260	2,746,988	19,645,245	11,528,532
2034	16,518,199	5,371,334	2,825,238	20,545,399	12,223,772
2035	17,093,821	5,658,660	2,904,968	21,500,474	12,970,282
2036	17,689,502	5,960,969	2,986,153	22,514,553	13,772,173
2037	18,305,941	6,279,026	3,068,761	23,592,046	14,633,892
2038	18,943,861	6,561,582	3,206,856	24,735,673	15,560,250
2039	19,604,012	6,856,854	3,351,164	25,952,446	16,556,452
2040	20,287,168	7,165,412	3,501,966	27,247,916	17,628,127
2041	20,994,130	7,487,856	3,659,555	28,628,084	18,781,366
2042	21,725,727	7,824,809	3,824,235	30,099,439	20,022,756
2043	22,482,820	8,176,926	3,996,325	31,668,996	21,359,427
2044	23,237,425	8,544,887	4,176,160	33,345,468	22,829,090
2045	24,017,357	8,929,407	4,364,087	35,138,399	24,414,535

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2015, and does not take into account any subsequent changes.

1. Administration

Each of the 107 contributory retirement systems for public employees of the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

- (i) Group 1: Most general employees in State and local government
- (ii) Group 2: Certain specified hazardous duty positions
- (iii) Group 3: State police officers and inspectors
- (iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

Chapter 176 of the Acts of 2011 created different plan provisions within these groups for those hired on or after April 2, 2012.

3. **Salary**

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

4. **Member Contributions**

Member contributions vary depending upon date hired as follows:

<u>Date of Hire</u>	<u>Member Contribution Rate</u>
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of \$30,000

For Group 1 employees who become members on or after April 2, 2012, the Contribution Rate shall be 6% after the completion of 30 years of service.

5. **Average Salary**

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.). For employees who become members on or after April 2, 2012, the averaging period shall be five years.

6. **Creditable Service**

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

7. Service Retirement

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

- (i) completion of 20 years of service
- (ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member
- (iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service
- (iv) for a Group 1 employee hired on or after April 2, 2012, attainment of age 60 and completion of ten years of service

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table for those hired prior to April 2, 2012:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

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For those hired after April 1, 2012 who retire with less than 30 years of service, the following rates are applied:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
67 or Over	.0250	.0250	.0250
66	.0235	.0250	.0250
65	.0220	.0250	.0250
64	.0205	.0250	.0250
63	.0190	.0250	.0250
62	.0175	.0250	.0250
61	.0160	.0235	.0250
60	.0145	.0220	.0250
59		.0205	.0250
58		.0190	.0250
57		.0175	.0250
56		.0160	.0235
55		.0145	.0220
54			.0205
53			.0190
52			.0175
51			.0160
50			.0145

For those hired after April 1, 2012 who retire with at least 30 years of service, the following rates are applied:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
67 or Over	.02500	.02500	.02500
66	.02375	.02500	.02500
65	.02250	.02500	.02500
64	.02125	.02500	.02500
63	.02000	.02500	.02500
62	.01875	.02500	.02500
61	.01750	.02375	.02500
60	.01625	.02250	.02500
59		.02125	.02500
58		.02000	.02500
57		.01875	.02500
56		.01750	.02375
55		.01625	.02250
54			.02125
53			.02000
52			.01875
51			.01750
50			.01625

8. Deferred Vested Retirement

a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

9. Accidental Disability

a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus \$450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. Ordinary Disability

a. Eligibility:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55 or age 60 if hired on or after April 2, 2012).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55 (age 60 if hired on or after April 2, 2012). If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55 (age 60 if hired on or after April 2, 2012), he

will receive not less than the superannuation allowance to which he is entitled.

11. Survivor Benefits

a. Occupational Death:

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. Non-Occupational Death:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of \$250 per month to the surviving spouse, plus \$120 for the first child, plus \$90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of \$250 per month plus \$120 for the first child and \$90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

12. Cost-of-Living Increases

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$12,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

13. Postretirement Death Benefits

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

- (i) Option A – Life annuity
- (ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member
- (iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

1. Member Data

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. Valuation Date

January 1, 2015.

3. Actuarial Cost Method

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. Rate of Investment Return

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.0% per annum.

5. Salary Scale

It is assumed that salaries including longevity will increase at a rate of 4.0% per year.

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$12,000 per year.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC). The actuarial value of assets is

determined using a five-year smoothing of unrealized gains and losses. The result must be within 20% of market value.

8. **Annual Rate of Withdrawal Prior to Retirement**

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

<u>Service</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

9. **Annual Rate of Mortality**

It is assumed that both pre-retirement and post retirement mortality are represented by the RP-2000 Mortality Table for males and females, adjusted to 2015 with Scale AA. For 2011, the Scale AA adjustment was excluded. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired prior to April 2, 2012:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0100	0.0150	0.02000
51	0.0100	0.0150	0.02000
52	0.0100	0.0200	0.02000
53	0.0100	0.0250	0.05000
54	0.0200	0.0250	0.07500
55	0.0200	0.0550	0.15000
56	0.0250	0.0650	0.10000
57	0.0250	0.0650	0.10000
58	0.0500	0.0650	0.10000
59	0.0650	0.0650	0.15000
60	0.1200	0.0500	0.20000
61	0.2000	0.1300	0.20000
62	0.3000	0.1500	0.25000
63	0.2500	0.1250	0.25000
64	0.2200	0.1800	0.30000
65	0.4000	0.1500	1.00000
66	0.2500	0.2000	1.00000
67	0.2500	0.2000	1.00000
68	0.3000	0.2500	1.00000
69	0.3000	0.2000	1.00000
70	1.0000	1.0000	1.00000

The assumed annual retirement rates are illustrated at the following ages for those hired on or after April 2, 2012:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0000	0.0000	0.0100
51	0.0000	0.0000	0.0100
52	0.0000	0.0000	0.0200
53	0.0000	0.0000	0.0200
54	0.0000	0.0000	0.0200
55	0.0000	0.0000	0.0500
56	0.0000	0.0000	0.0750
57	0.0000	0.0000	0.1500
58	0.0000	0.0000	0.1000
59	0.0000	0.0000	0.1000
60	0.0500	0.0650	0.1000
61	0.0650	0.0650	0.1500
62	0.2000	0.1500	0.2000
63	0.2000	0.1300	0.2000
64	0.3000	0.1500	0.3000
65	0.2500	0.1250	1.0000
66	0.2200	0.1800	1.0000
67	0.4000	0.2500	1.0000
68	0.3000	0.2000	1.0000
69	0.3000	0.2000	1.0000
70	1.0000	1.0000	1.0000

12. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125

In addition, it is assumed for the general employees that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

13. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

14. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2014 is \$175,000 and is anticipated to increase at 4.0% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. Actuarial Accrued Liability

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. Actuarial Cost Method

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. Actuarial Present Value

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. Forecast

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. Normal Cost

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. Unfunded Actuarial Accrued Liability

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. Valuation Method

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

9. Vested Liability

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

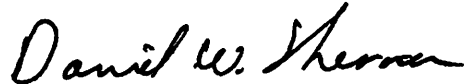
This report fairly represents the actuarial position of the Town of North Attleboro Retirement System contributing as of January 1, 2015, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. The economic assumptions were selected by the Retirement Board. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

The funded status measure is appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations. The funded status measure is appropriate for assessing the need for or the amount of future contributions. The funded status measure would be different if the measure reflected the market value of assets rather than the actuarial value of assets.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

The report was prepared under the supervision of Daniel Sherman, an Associate of the Society of Actuaries and a Member of the American Academy of Actuaries, who takes responsibility for the overall appropriateness of the analysis, assumptions and results. Daniel Sherman is deemed to meet the General Qualification Standard and the basic education and experience requirement in the pension area. Based on over thirty years of performing valuations of similar complexity, Mr. Sherman is qualified by experience. Daniel Sherman has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sherman Actuarial Services, LLC



Daniel W. Sherman, ASA, MAAA

June, 2015

BREAKOUTS

Breakouts

	<u>Total</u>	<u>Town</u>	<u>Housing</u>	<u>Electric</u>	<u>School</u>	<u>Landfill</u>	<u>Water</u>	<u>Sewer</u>
(1) Payroll of Active Participants	\$22,706,208	\$12,678,753	\$285,109	\$2,465,451	\$5,593,869	\$236,094	\$690,380	\$756,552
Percentage of Total Payroll	100.00%	55.84%	1.26%	10.86%	24.64%	1.04%	3.04%	3.32%
(2) Total Employer Contributions								
(a) ERI	\$7,001	\$0	\$7,001	\$0	\$0	\$0	\$0	\$0
(b) Remaining Amortizations*	1,865,170	1,041,511	23,501	202,557	459,578	19,398	56,701	61,924
(c) Employer Normal Cost*	1,291,768	721,323	16,276	140,286	318,292	13,434	39,270	42,887
(d) Administrative Expenses*	<u>245,575</u>	<u>137,129</u>	<u>3,094</u>	<u>26,669</u>	<u>60,510</u>	<u>2,554</u>	<u>7,465</u>	<u>8,154</u>
(e) Total Appropriation	\$3,409,514	\$1,899,963	\$49,872	\$369,512	\$838,380	\$35,386	\$103,436	\$112,965
(3) Fiscal 2017 Appropriation	\$3,667,448	\$2,043,840	\$53,394	\$397,495	\$901,866	\$38,066	\$111,269	\$121,518
Percent of Total Appropriation	100.00%	55.73%	1.46%	10.84%	24.59%	1.04%	3.03%	3.31%
(4) Fiscal 2018 Appropriation	\$3,800,634	\$2,118,210	\$55,072	\$411,959	\$934,684	\$39,451	\$115,318	\$125,940
Percent of Total Appropriation	100.00%	55.73%	1.45%	10.84%	24.59%	1.04%	3.03%	3.31%

*Allocated based on the ratio of the division payroll to the total payroll.